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PATENT APPLICATION

ATTORNEY DOCKET NO. 10010995-6

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Larry E. Maple

Confirmation No.: 9934

Application No.: 10/667,531

Examiner: Wills, Monique M.

Filing Date: 09-22-2003

Group Art Unit: 1894

Title: Minimizing Battery-To-Device Contact Resistance Stemming From Insulating Contaminant Layer On Same

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on **02-22-2006**.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( )	one month	$120.00
( )	two months	$450.00
( )	three months	$1020.00
( )	four months	$1590.00

( ) The extension fee has already been filled in this application.

(**X**) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of **$500.00**. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

( ) I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450. Date of Deposit:_____

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( ) I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number_____ on _____

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Respectfully submitted,

Larry E. Maple

By _____

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Date: **April 24, 2006**

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PATENT

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the Matter of the Application of:	Larry E. Maple
Serial No.:	10/667,531
Filed:	September 22, 2003
Entitled:	MINIMIZING BATTERY-TO-DEVICE CONTACT RESISTANCE STEMMING FROM INSULATING CONTAMINANT LAYER ON SAME
Docket No.:	10010995-6

Group Art Unit: 1894
Examiner: Wills, Monique M.

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APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P. of Houston, Texas. Hewlett-Packard Development Company, L.P. derives its rights in this application by virtue of assignment of the application to Hewlett-Packard Development Company, L.P.

II. RELATED APPEALS AND INTERFERENCES

There is currently a pending appeal for U.S. Patent Application No. 10/674,231, filed on February 22, 2006, which may be related to, directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 36-40 and 45-48 are currently pending in the present application, Application Number 10/667,531. Claims 36, 45 and 46 have been finally rejected and, therefore, are subject to appeal.

IV. STATUS OF AMENDMENTS

All Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 36 is directed to a battery-powered device comprising a battery compartment 800, 900, 1000, 1212 with a coiled spring battery contact 600, 700, 750 disposed in the compartment to scrape away a portion of an insulating contaminant layer from a surface 116, 214 of an abutting terminal 108, 208 of an installed battery 100, 200. Independent claim 45 is directed to a battery-powered device comprising: a battery compartment 800, 900, 1000, 1212; and a coiled spring battery contact 600, 700, 750 comprising means 610, 710, 752A-C for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface 116, 214. Thus, the claimed subject matter is directed to minimizing battery-to-device contact resistance by rupturing (claim 45) or scraping away (claim 36) at least a portion of an insulating contaminant layer disposed on

a battery terminal that electrically contacts a coiled spring battery contact of a battery compartment.

Disclosed embodiments of the "coiled spring battery contact disposed in the compartment to scrape away a portion of an insulating contaminant layer from a surface of an abutting terminal of an installed battery" of claim 36 and the "coiled spring battery contact comprising means for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface" are described in at least pages 4-6 and 14-17 of Applicant's application.

Disclosed embodiments of the claimed invention are directed to a coiled spring battery contact for use in a battery compartment. The coiled spring contact is configured with one or more terminal contact regions disposed on the upper end turn of the spring, each having a minimal surface area for contacting a terminal of an abutting battery. Each contact region provides, for a given compression force, at least one contact point that imparts a pressure sufficient to rupture an insulating contaminant layer on the abutting battery terminal.

Preferably, the terminal contact point(s) is/are laterally offset from an axis of rotation defined by the windings of the coiled spring contact. This causes regions of the windings disposed toward this lateral direction to compress more that other regions of the windings in response to an axial compression force applied by an abutting battery. This, in turn, causes the terminal contact point(s) to shift further in the lateral direction as the contact spring is compressed. As this occurs, the terminal contact point(s) scrape against the terminal of the installed battery, substantially removing any insulating contaminant layer disposed on the battery terminal.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether the Examiner improperly rejected independent claim 45 as being anticipated by U.S. Patent No. 2,896,875 to Reed *et al.* ("*Reed*" herein) when *Reed* neither discloses, teaches nor suggests a coiled spring battery contact comprising means for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface.

2. Whether the Examiner improperly rejected independent claim 36 and dependent claim 46 as being anticipated by *Reed* when *Reed* neither discloses, teaches nor suggests a coiled spring battery contact that scrapes away at least a portion of an insulating contaminant layer from a surface of an abutting terminal of an installed battery.

VII. ARGUMENT

The following arguments address claims 36, 45 and 46 based on the similarity of the rejections levied by the Examiner and/or by the similarity of the Applicant's basis for traversing such rejections. Claim 45 recites entirely different limitations than claims 36 and 46, and claim 45 is independently patentable than claims 36 and 46.

A well-documented problem with standard dry-cell, miniature and other types of batteries is that over time surface contaminants such as oxide, sulfide and corrosive films form on the terminals of the battery. Such an insulating contaminant layer increases battery contact resistance, consuming battery power. This results in the rapid depletion of the installed batteries, and decreases the maximum current available from the installed batteries. As noted, the claimed subject matter is directed to minimizing battery-to-device contact resistance by rupturing and/or scraping away at least a portion of an insulating contaminant layer disposed on a battery terminal that electrically contacts a coiled spring battery contact of a battery compartment.

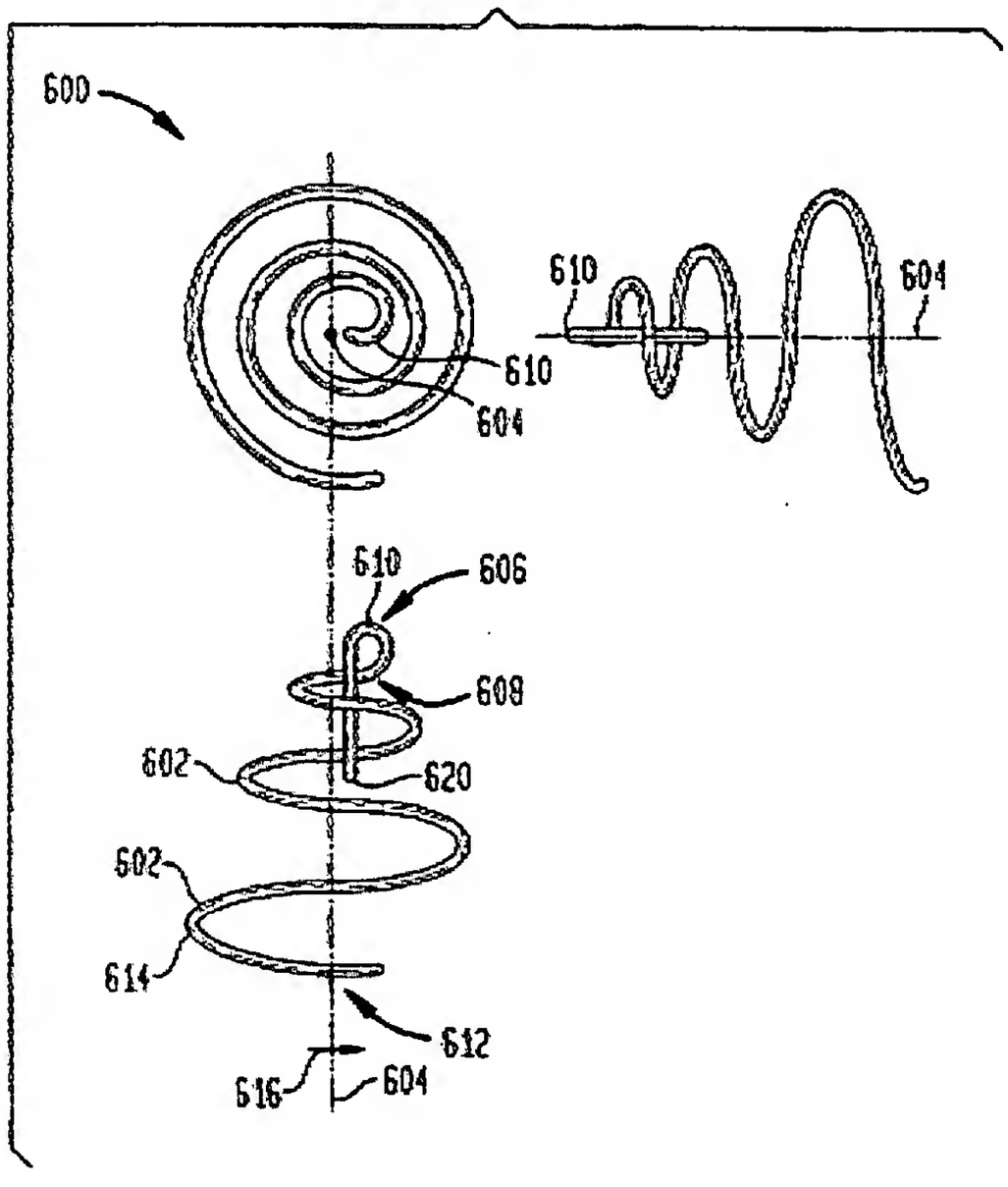
Disclosed embodiments of the claimed invention are directed to a coiled spring battery contact for use in a battery compartment. The coiled spring contact is configured with one or more terminal contact regions disposed on the upper end turn of the spring, each having a minimal surface area for contacting a terminal of an abutting battery. Each contact region provides, for a given compression force, at least one contact point that imparts a pressure sufficient to rupture an insulating contaminant layer on the abutting battery terminal.

Preferably, the terminal contact point(s) is/are laterally offset from an axis of rotation defined by the windings of the coiled spring contact. This causes regions of the windings disposed toward this lateral direction to compress more that other regions of the windings in response to an axial compression force applied by an abutting battery. This, in turn, causes the terminal contact point(s) to shift further in the lateral direction as the contact spring is compressed. As this occurs, the terminal contact point(s) scrape against the terminal of the installed battery, substantially removing any insulating contaminant layer disposed on the battery terminal.

Three exemplary embodiments are provided in Applicant's specification: Figures 6, 7A and 7B. Figures 6 and 7A each depict a side, top and front view of alternative embodiments of a coiled spring contact of the present invention, while Figure 7B is a perspective view of a third embodiment of Applicant's claimed coil spring contact. Each embodiment is summarized below.

Fig. 6 of Applicant's Application

FIG. 6



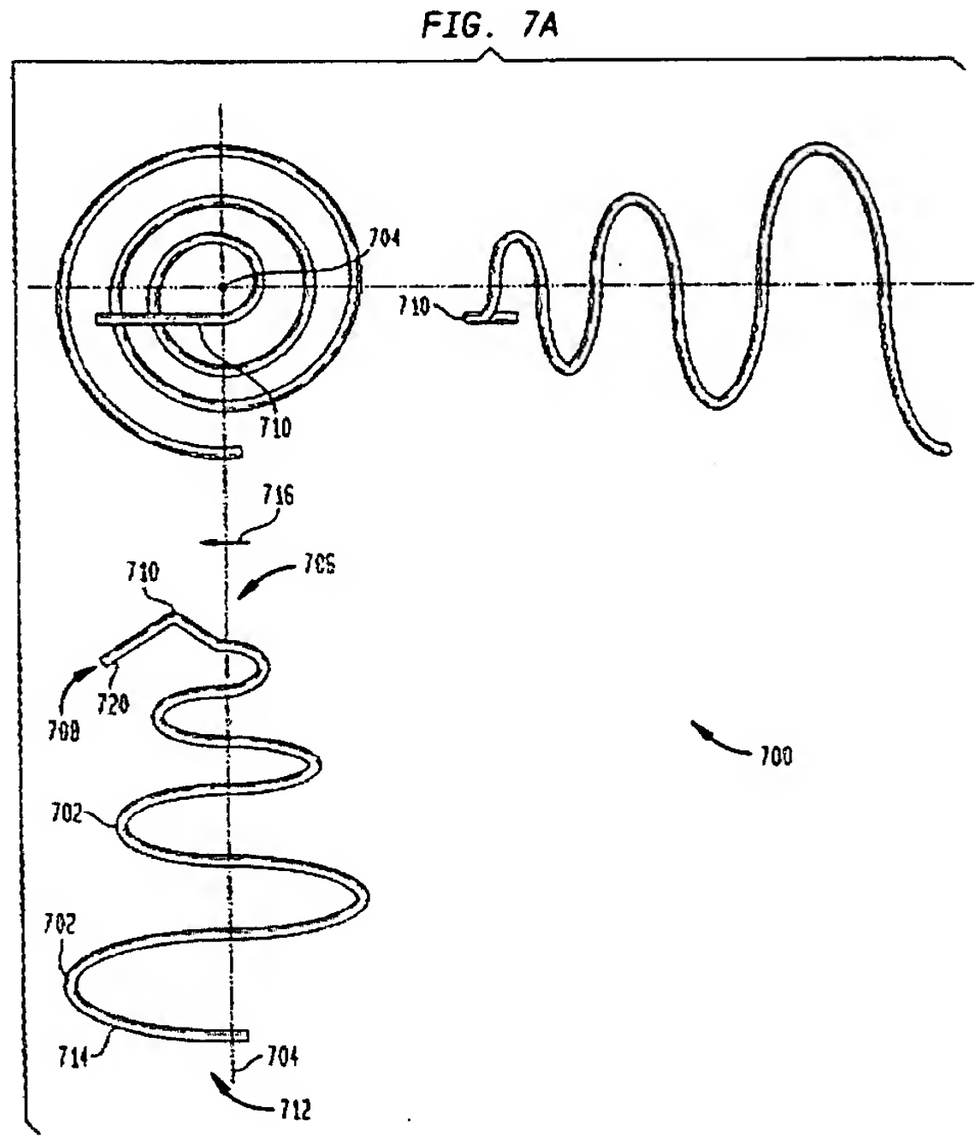
In the embodiment illustrated in Applicant's FIG. 6, reproduced to the left, coiled spring contact 600 has a series of windings 602 dimensioned, in this example, to form a conical spring. Lower end turn 614 is configured to be secured to a battery compartment or circuit board while upper end turn 608 is designed to contact a battery installed in the battery compartment. Windings 602 have a central axis of rotation 604 substantially orthogonal to the surfaces of an abutting battery.

A terminal contact point 610 is formed on the upper end turn 608 to provide a terminal contact region 610 for contacting an abutting terminal of a battery. In the embodiment shown in FIG. 6, terminal contact region 610 is a hairpin turn formed in upper end turn 608 so as to restore in a plane that is parallel with the center axis of rotation. When coiled spring contact 600 is compressed during battery installation, contact region 610 imparts a pressure sufficient to rupture an insulating contaminant layer on the abutting battery terminal.

Furthermore, as shown in FIG. 6, contact point 610 is also preferably eccentric; that is, it is spaced laterally from axis 604 of conical coiled spring contact 600. As a result, as a battery compresses conical coiled spring contact 600, contact point 610 shifts laterally from its shown position in the direction of eccentricity 616. This imparts a lateral sliding motion

against the abutting battery terminal that scrapes away a substantial portion of any existing insulating contaminant layer.

Fig. 7A of Applicant's Application



In the embodiment shown in Applicant's Figure 7A, reproduced to the right, a similarly configured coiled spring contact 700 is shown. In this embodiment, a slight bend is formed in upper end turn 708 of coiled spring contact 700. The apex of this bend forms contact point 710.

In the embodiment shown in Applicant's Figure 7B, reproduced below, the coiled spring contact has more than one eccentric contact point. Conical coiled spring contact 750 reduces or eliminates contact resistance between an abutting battery terminal and coiled spring contact 750 by providing multiple high pressure contact points 752 each of which ruptures and/or preferably scrapes, an insulting contaminant layer on an abutting battery terminal.

Conical coiled spring contact 750 is constructed similarly to contacts 600 and 700. However, in contrast to contacts 600 and 700, conical coiled spring contact 750 is configured with an upper end turn 756 with bends that form three eccentric terminal contact regions 752A-752C for contacting an abutting battery terminal. The relative location on upper end turn 756 of each terminal contact point 752 can be selected to prevent or induce a desired lateral shift.

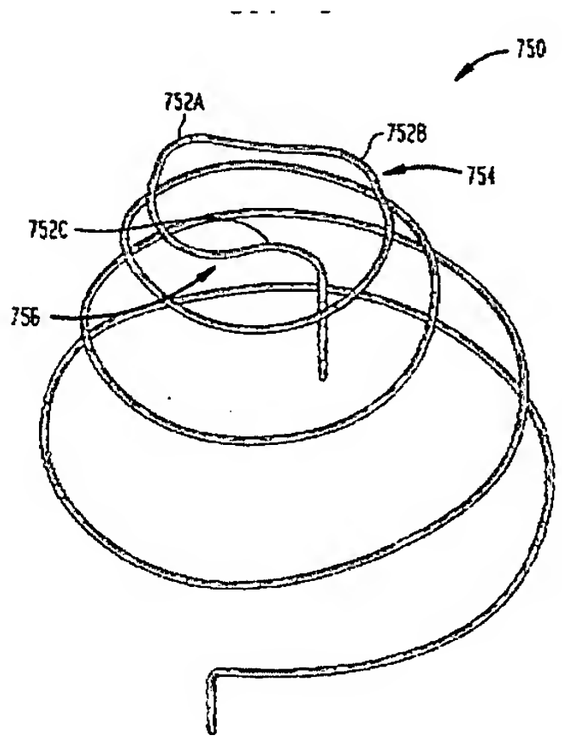


Fig. 7B of Applicant's Application

Claim 36 recites in relevant part "[a] battery-powered device comprising a battery compartment with a coiled spring battery contact disposed in the compartment to scrape away a portion of an insulating contaminant layer from a surface of an abutting terminal of an installed battery." See, Applicant's claim 36, below.

Claim 45 recites in relevant part "[a] battery-powered device comprising: a battery compartment; and a coiled spring battery contact comprising means for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface." See, Applicant's claim 45, below.

Claim 46 depends from claim 45, and recites in relevant part "wherein the coiled spring battery contact further comprises: means for scraping at least a portion of the insulating contaminant layer from the terminal surface as the battery is installed in the compartment." See, Applicant's claim 46, below.

In the Office Action mailed November 30, 2005, the Examiner rejected claims 36, 45 and 46 under 35 U.S.C. § 102(b) as being anticipated by *Reed*. Acknowledging that *Reed* fails to expressly teach or suggest each and every element of Applicant's invention as recited in claims 36, 45 and 46, the Examiner asserts that *Reed* inherently teaches that which is not expressly taught in the reference.

Specifically, the Examiner makes the unsupported assertion that, "[w]ith respect to claims 36 and 46, the limitation ...[of]... with respect to scraping away a portion of an insulating contaminant layer from a surface of an abutting terminal of an installed battery is considered an inherent characteristic of the spring contact (18), because the spring contact [of Reed] is capable of performing said function" See, Office Action, pg. 4 (emphasis added).

Similarly, the Examiner acknowledges that *Reed* fails to expressly teach or suggest each and every element of claim 45, asserting that *Reed* inherently teaches "... a coiled spring battery contact comprising means for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface ..." as recited in Applicant's claim 45. Specifically, the Examiner makes the unsupported assertions that, "[a]s to claim 45, the limitation ...[of]... means for rupturing an insulating contaminant layer on a localized region of an abutting terminal of an abutting battery terminal surface, is considered an inherent characteristic of the spring contact (18), because the spring contact [of Reed] is capable of performing said function" See, Office Action, pgs. 4-5 (emphasis added).

The Examiner concludes, while referring to *Reed*, that "it is reasonable to assume a low compressive strength is capable of scraping away a variety of contaminant materials." See, Office Action, pgs. 6-7 (emphasis added).

For at least the reasons set out below, Applicant respectfully asserts that these grounds of rejection are misplaced, leaving the Office Action without a *prima facie* rejection of claims 36, 45 and 46. As such, the rejections of these claims are improper and should be reversed.

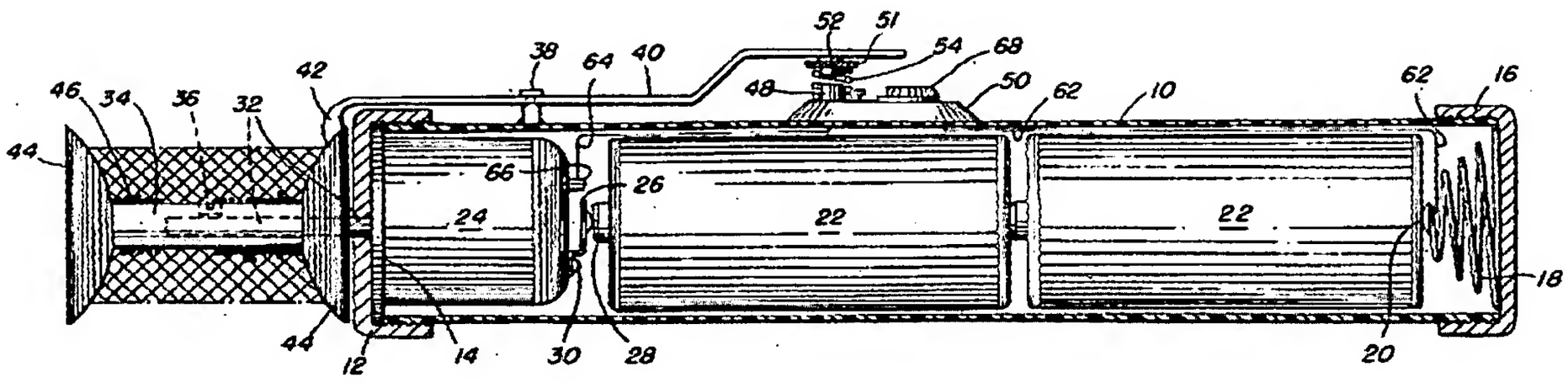
The Examiner has failed to show that *Reed* anticipates Applicant's claims 36, 45 and 46. Under 35 U.S.C. §102, claims are "anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." The Manual of Patent Examining Procedure ("MPEP") §2131 (8th Edition 2005); *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987); *See also Structural Rubber Pods. Co. v. Park Rubber Co.*, 749 F.2d 707, 715, 223 USPQ 1264 , 1270 (Fed. Cir. 1984).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied prior art." MPEP §2112 (quoting Ex parte Levy, 17 USPQ2D 1461, 1464 (BD. Pat. App. & Inter. 1990). See also, *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q. 1949, 1951 (Fed. Cir. 1999) ("To establish inherency, the evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. (See, MPEP 2112, citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).) In *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991) the Court states that "[i]nherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." (*Id.*)

The Examiner has failed to meet the burden required under these well-settled precedents.

Fig. 1 of *Reed*

FIG. 1



As shown in Figure 1 of *Reed*, reproduced above, the *Reed* device is a motor driven fishing reel that relies on one or more batteries within the device to power the motor. See, *Reed*, column 1, lines 15-19. The batteries 22 are maintained in place by, among other things, a coiled spring 18 that has a contact plate 20 at its narrow end, and which is secured to the casing 10 at its wide end. See, *Reed*, column 2, lines 8-13; 64-71.

The *Reed* contact plate 20 is neither described structurally nor functionally. In fact, there is no teaching regarding the shape of the contact plate 20 other than the portrayal in Figure 1 of Reed that the contact plate 20 has some thickness, and references throughout the Reed specification that contact plate 20 is a "plate"; that is, contact plate 20 is relatively planar. It should also be noted that the only disclosure regarding spring 18 is that it is a coiled spring attached to the battery case, and that it compresses when a battery cell 22 is installed. See, *Reed*, column 2, lines 64–68; column 4, line 65.

Accordingly, the only inherent operation which can be derived from a reasonable reading of the *Reed* specification is that contact plate 20 is capable of performing the purpose intended by *Reed*; that is, it is an electrically-conductive, planar material having dimensions sufficient to provide adequate surface contact area so that an electrical connection may be established with an installed battery cell 22. In addition, because *Reed* is concerned only with maintaining the batteries in place, the amount of pressure applied by the spring 18 would only need to be sufficient to maintain a completed circuit. Accordingly, a terminal of an installed battery abuts a relatively planar surface of contact plate 20, which remains in stationary planar contact with the battery terminal as the spring 18 is compressed during battery installation.

Thus, a reasonable reading of *Reed* fails to reveal that either the claimed features of rupturing and scraping away an insulating contaminant layer from a battery terminal are inherent features of the *Reed* device. Specifically, the Examiner has failed to provide any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied prior art." See, MPEP §2112, *Ex parte Levy*, 17 USPQ2D 1461, 1464 (BD. Pat. App. & Inter. 1990), and *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q. 1949, 1951 (Fed. Cir. 1999).

In addition, the Examiner's reliance on the capability of the Reed device to perform the claimed functions contradicts settled caselaw. In fact, this very rationale was rejected by the Federal Circuit in *in re Robertson*. In *Robertson*, 169 F.3d at 745, the Board of Patent Appeals originally held that a diaper having two fastening devices inherently disclosed all elements of a claim directed to a mechanical fastening device comprising three fastening means. The Board upheld the inherency rejection on the grounds that the two fastening devices of the prior art "were capable of being intermingled to perform the same function as the third and first fastening elements" in the claimed invention. *Id;* emphasis added. The Federal Circuit reversed the Board, noting that ***the fact that the devices were merely "capable of being" used for the same function is not sufficient to show that the later device was inherently disclosed by the prior art***. *Id;* emphasis added. Furthermore, the Federal Circuit noted that ***this type of analysis "rests upon the very kind of probability or possibility... that this court has pointed out is insufficient to establish inherency" and makes no attempt to show that the third fastening element was necessarily disclosed*** by the prior art. *Robertson*, 169 F.3d at 745.

The Examiner's misplaced understanding is further exemplified by the Examiner's assertion that "it is reasonable to assume a low compressive strength is capable of scraping away a variety of contaminant materials" See, Office Action, pgs. 6-7. Like the rejections at issue in *Robertson,* this rationale based upon the very kind of probability or possibility... that... [the Federal Circuit] has pointed out is insufficient to establish inherency." *Id.* at 745. See Also *In Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991) ("[i]nherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.")

For at least the above reasons, Applicant respectfully asserts that there is no express, implicit or inherent disclosure in Reed indicating that the Reed device performs the alleged function recited in Applicant's claims 36, 45 and 46. Applicant therefore respectfully asserts that the Section 102 rejection of independent claims 36 and 45, and dependent 46, are improper and should be reversed. Accordingly, Applicant request that the Examiner's rejection of these claims be reversed and that this pending application be passed to issue.

Dated: April 24, 2006

Respectfully submitted,

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CLAIMS APPENDIX

36. A battery-powered device comprising a battery compartment with a coiled spring battery contact disposed in the compartment to scrape away a portion of an insulating contaminant layer from a surface of an abutting terminal of an installed battery.

37. The device of claim 36, wherein the coiled spring contact comprises a plurality of concentric windings contiguous with an upper end turn with a terminal contact point laterally offset from an axis of rotation defined by the windings.

38. The device of claim 37, wherein the terminal contact point imparts a pressure sufficient to rupture the insulating contaminant layer on a surface of said abutting terminal.

39. The device of claim 37, wherein during battery installation the coiled spring contact compresses in a manner that causes the terminal contact point to laterally shift away from said axis of rotation, thereby scraping away at least a portion of said insulating contaminant layer, if any, disposed on said surface of said abutting terminal.

40. The device of claim 37, wherein the upper end turn is formed with a bend with an apex facing into the battery compartment to form the terminal contact point.

45. A battery-powered device comprising:

a battery compartment; and

a coiled spring battery contact comprising means for rupturing an insulating contaminant layer on a localized region of an abutting battery terminal surface.

46. The device of claim 45, wherein the coiled spring battery contact further comprises:

means for scraping at least a portion of the insulating contaminant layer from the terminal surface as the battery is installed in the compartment.

47. The contact of claim 45, wherein the coiled spring contact comprises a plurality of concentric windings, and wherein the rupturing means comprises at least one bend in an upper turn of the coiled spring contact, each of said at least one bend having an apex facing into the battery compartment to define a terminal contact point.

48. The contact of claim 46, wherein the coiled spring contact comprises a plurality of concentric windings defining an axis of rotation, and wherein the scraping means comprises a bend on an upper turn of the coiled spring contact laterally offset from the axis of rotation, the bend having an apex facing into the battery compartment to define a terminal contact point.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None